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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/747,844	12/21/2000	Rod Kistler	LAM2P220C	4383

25920 7590 05/20/2003

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EXAMINER
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MORGAN, EILEEN P

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/747,844

Applicant(s)

Kistler et al.

Examiner

Morgan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on May 6, 2003
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                              | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other:  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8-14, 17, 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pant et al.-5,916,012 in view of Doran-5,888,120.

Pant discloses the claimed invention including applying a force to a bottom side of a polishing belt wherein a platen is below a belt and a wafer is polished from above the belt, wherein the pressure on the belt varies through holes (31,41). Pant does not disclose the use of piezoelectric elements for exerting pressure. However, Doran teaches polishing a wafer by applying different pressures on the backside through the use of piezoelectric elements (306-316) which can be controlled to exert varying pressure in response to conditions and wherein the elements vary in size and are smaller near the edge. Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to substitute the pressure control means of Pant with piezoelectric elements, as taught by Doran, in order to more accurately control pressure distribution.

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3. Claims 7,15,16,18, rejected under 35 U.S.C. 103(a) as being unpatentable over Pant and Doran as applied to claims above, and further in view of Tietz-6,135,859.

Pant and Doran fail to show a rolling sacrificial member. However, Tietz teaches polishing a wafer with a belt, having a platen and using a rolling supporting member (476b) member above platen for increase support and backing to belt (456b). Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to provide Pant with a rolling support member, as taught by Tietz, in order to increase support to the polishing belt.

4. Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pant et al in view of Doran and Tietz.

Pant discloses the claimed invention including applying a force to a bottom side of a polishing belt wherein a platen is below a belt and a wafer is polished from above the belt, wherein the pressure on the belt vary through slits (31,41). Pant does not disclose the use of piezoelectric elements for exerting pressure or a rolling sacrificial member. However, Doran teaches polishing a wafer by applying different pressures on the backside through the use of piezoelectric elements (306-316) which can be controlled to exert varying pressure in response to conditions and wherein the elements vary in size and are smaller near the edge. Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to substitute the pressure control means of Pant with piezoelectric elements, as taught by Doran, in order to more accurately control pressure distribution. In regard to the sacrificial member, Tietz teaches polishing a wafer with a belt, having a platen and using a rolling supporting member (476b)

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member above platen for increase support and backing to belt (456b). Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to provide Pant with a rolling support member, as taught by Tietz, in order to increase support to the polishing belt.

### *Response to Arguments*

5. Applicant's arguments filed 3-5-30 (RCE -5/6/03) have been fully considered but they are not persuasive.

In regard to arguments to the Pant and Doran combination. Pant indeed discloses using varying air pressure against the back side of the polishing belt to achieve uniform polishing. Doran is relied upon to teach the use of exerting pressure by piezoelectric elements, which are functionally equivalent to the air pressure points of Pant, and therefore, one of ordinary skill would be motivated to use a functional equivalent, such as piezoelectric elements to exert the pressure of the Pant device. Doran is merely relied upon to teach an equivalent pressurizing means, such as piezoelectric elements, which are old and well-known. Doran isn't used to teach applying force to the backside of the wafer, but to teach that using piezoelectric elements to "apply force" is well-known. Both references use functional equivalents to apply force to the backside of an object. One of ordinary skill in the art would be motivated to substitute piezoelectric elements for air pressure elements.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to E. Morgan whose telephone number is (703) 308-1743.



EILEEN P. MORGAN  
PRIMARY EXAMINER

EM

May 15, 2003